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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MARIAM, DANIEL G

ART UNIT PAPER NUMBER

2621

DATE MAILED: 04/21/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/639,154

Applicant(s)

HE ET AL.

Examiner

DANIEL G MARIAM

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-16, 20-35 and 40 is/are allowed.
- 6) ☒ Claim(s) 17-19 and 36-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

Response to Amendment

1. In response to the Office Action mailed on October 21, 2003 applicants have submitted an amendment filed on January 21, 2004 amending claims 1, 2, 8-10, 13-14, 16-17, 20, 27-29, 34-36, 39, and 40; and arguing to traverse the rejection of pending claims 1-40.

Response to Arguments

2. With respect to claim 39, applicants argue on page 15 of the remarks, that Snashall, et al. lacks any mention that the high frequency edge detector is capable of detecting both “at least one edge having higher frequency content . . . and at least one edge having lower frequency content”. The Examiner disagrees. At column 3, lines 16-27, Snashall, et al. states: “edge detector (26) operates so as to cause switch (24) to accept the output from demultiplexer (18) only in the event that it detects a high frequency keying signal. The frequency at which the edge detector triggers may be preset by the user. It is only with such high frequency signals that Nyquist sampling resolution problems arise. If the keying signal is relatively low frequency then no sampling problems arise and it is unnecessary to low pass filter the upsampled keyed signal--the latter is simply restored to its correct value by demultiplexer (20) and passed on by switch (24) unaltered”. Clearly, Snashall, et al. would not be transmitting the low frequency signals as is or unaltered without detecting them first, and thus, Snashall, et al. does detect both of the high frequency and low frequency edges.

Applicants further allege, on the same page of the remarks, that Snashall, et al. lacks distinguishing the edges having high frequency content from edges having low frequency content. The Examiner disagrees. It is apparent from the above-identified passages, that Snashall, et al. does discriminate between the high and low frequency edges. Without

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distinguishing between the two, Snashall, et al. would not only modify/alter the high frequency signals, he would also perform the same for the low frequency signals. Instead, Snashall, et al distinguishes the high frequency signals from the low frequency signal, and he only alters the high frequency signals to reduce degradation of the signals, and therefore, Snashall does anticipate applicants' invention as recited in claim 39.

3. Applicants' arguments, see page 15 of the remarks, filed January 21, 2004, with respect to the rejection(s) of claim(s) 17-19 and 36-38 under 35 U.S.C 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Noren, et al and Kreger, et al. which will be discussed in the rejection below.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 39 is rejected under 35 U.S.C. 102(b) as being anticipated by Snashall, et al. (4,979,022).

With regard to claim 39, Snashall, et al. discloses an input adapted to receive an image signal, i.e., a digital color video signal, a processing apparatus adapted: to detect at least one edge having higher frequency content in the image signal and at least one edge having lower frequency content; and to distinguish the edges having higher frequency content from the edges having lower frequency content (which corresponds to edge detector 26 that operates so as to

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cause switch 24 to accept the output from demultiplexer 18 only in the event that it detects a high frequency keying signal), and an output arranged to supply an edge detection indication only in response to the edges having higher frequency content, i.e., the edge detector accepts the output from the demultiplexer 18 only in the event it detects a high frequency keying signal (See col. 3, lines 17-30. Additionally, arguments set forth above in paragraph 2 are not repeated herein, but are incorporated by reference).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 17-19 and 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noren, et al. in view of Kreger, et al. (5,436,564).

With regard to claim 17, Noren, et al. an input for receiving an image related signal, i.e., cardiac signal, means (which corresponds to summing stage) for effecting a combined low pass filter and derivative operation, (without separating the two operations) on the image related signal, and an output for providing a result of the combined low pass filter and derivative operation (See for example, col. 11, lines 30-40, and Fig. 36). Noren, et al. does not explicitly call for means for effecting a combined low pass filter and derivative operation without separating the two operations. However, Kreger, et al. (col. 5, lines 3-16 and lines 40-47; and item 70, in Fig. 4) teaches this feature. Therefore, it would have been obvious to incorporate the

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teaching as taught by Kreger, et al. into the system of Noren, et al. and to do so would at least reduce cost and minimizes processing time.

With regard to claims 18 and 19, wherein the derivative is a second derivative and a first derivative (See col. 11, lines 35-49 of Noren, et al.).

Claims 36, 37, and 38 are rejected the same as claims 17, 18, and 19 respectively except claims 36, 37, and 38 are apparatus claims. Thus, arguments analogous to those presented above for claims 17, 18, and 19 are respectively applicable to claims 36, 37, and 38.

Allowable Subject Matter

8. Claims 1-16, 20-35 and 40 are allowed.

9. The following is an examiner's statement of reasons for allowance: none of the prior art of record teach or fairly suggest, among other things, detecting edges by performing: a first detection detecting whether a second derivative of the image signal crosses zero; and performing a second detection detecting whether a first derivative of the image signal is greater than a first threshold based on a positive result from the first detection, and a third detection detecting whether an indication of an edge frequency meets a predetermined criterion. It is for these reasons in combination with all of the other elements of the claims that claims 1-16, 20-35 and 40 are allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


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Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G MARIAM whose telephone number is 703-305-4010. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LEO BOUDREAU can be reached on 703-305-4607. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DANIEL MARIAM
PRIMARY EXAMINER
April 19, 2004